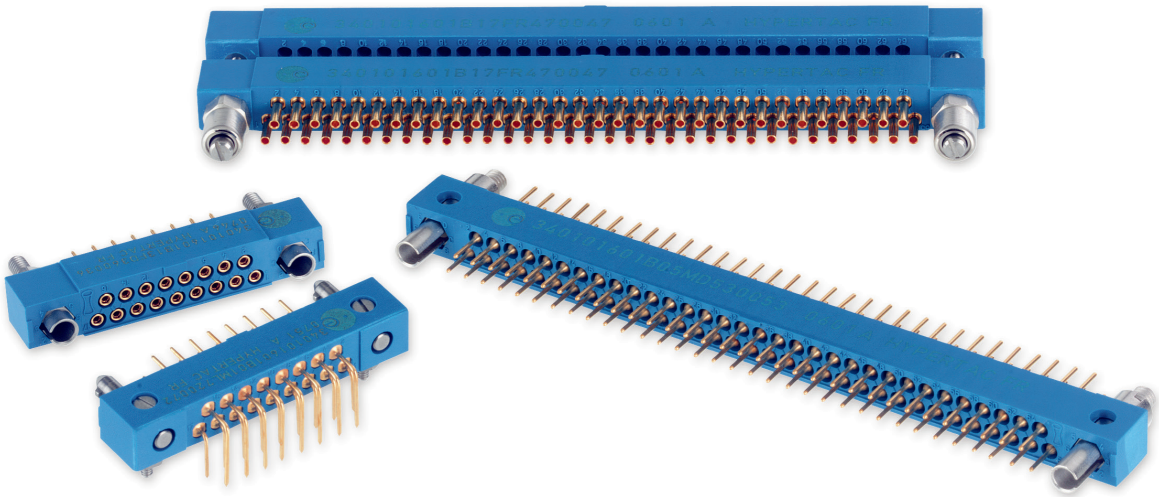
smiths interconnect

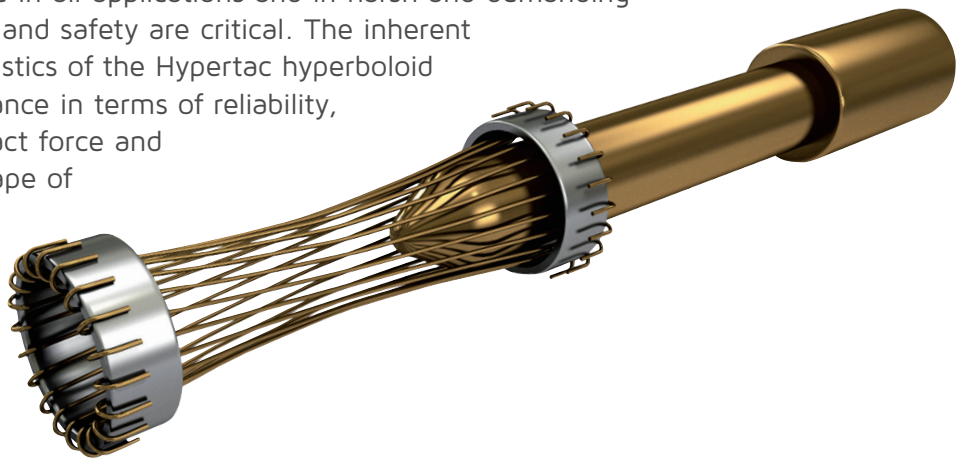
KNB/KNC/KND Series

Medium & High Density PCB Connectors



Hypertac® Hyperboloid Technology

Smiths Interconnect offers an extensive range of superior contact technologies suitable for standard and custom solutions. Hypertac® (HYPERboloid conTACt) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths.



Features

Low insertion/extraction forces

The angle of the socket wires allows tight control of the pin insertion and extraction forces. The spring wires are smoothly deflected to make line contact with the pin.

Long contact life

The smooth and light wiping action minimizes wear on the contact surfaces. Contacts perform up to 100,000 insertion/extraction cycles with minimal degradation in performance.

Lower contact resistance

The design provides a far greater contact area and the wiping action of the wires insures a clean and polished contact surface. Our contact technology has about half the resistance of conventional contact designs.

Higher current ratings

The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times.

Immunity to shock & vibration

The low mass and resultant low inertia of the wires enable them to follow the most abrupt or extreme excursions of the pin without loss of contact. The contact area extends 360° around the pin and is uniform over its entire length. The 3 dimensional symmetry of the Hypertac contact design guarantees electrical continuity in all circumstances.

Benefits

High density interconnect systems

Significant reductions in size and weight of sub-system designs. No additional hardware is required to overcome mating and un-mating forces.

Low cost of ownership

The Hypertac contact technology will surpass most product requirements, thus eliminating the burden and cost of having to replace the connector or the entire subsystem.

Low power consumption

The lower contact resistance of our technology results in a lower voltage drop across the connector reducing the power consumption and heat generation within the system.

Maximum contact performance

The lower contact resistance of the Hypertac contact reduces heat build-up; therefore Hypertac contacts are able to handle far greater current in smaller contact assemblies without the detrimental effects of high temperature.

Reliability under harsh environments

Harsh environmental conditions require connectors that will sustain their electrical integrity even under the most demanding conditions such as shock and vibration. The Hypertac contact provides unmatched stability in demanding environments when failure is not an option.

Contents

KN Series - Medium Density PCB Connectors

Technical Characteristics

Contact diameter	HYPERTAC® type Ø 0.60 mm rear removable
Number of contact	Up to 120
Pitch	2.54 mm between rows - 1.27 mm between quicuncial contacts
Rows	2

Materials & Platings

Contact	Brass or bronze	
Moulding	Glass fiber filled diallyl - Phtalate	
Guides	Stainless steel or nickel plated brass	
	Standard	**ESA**
Pin body	0.25 µm gold / 1.27 µm Ni	1.27 µm gold / 1.27 µm Ni (min.)
Socket body	0.25 µm gold / 1.27 µm Ni on active area 1.27 µm Ni on non active area	0.25 µm gold / 1.27 µm Ni (min.)
Socket wires	1 µm gold / 0.20 µm Ni	1.27 µm gold / 0.20 µm Ni (min.)

Electrical

Current grade rating (at 25°C)	Standard grade: 3 A max. - ESA grade: 5 A max.
Dielectric withstanding voltage	1200 Vrms
Contact resistance	≤8 mΩ
Insulation resistance	>104 MΩ (500 Vcc)

Mechanical

Mating & unmating cycle	5000
Guiding	By two outside guides (2 guiding styles) and one central guide (3 guiding styles)
Keying	By rotating of outside polarised guides (up to 36 keying)

Environmental

Temperature range	–55°C to 125°C
Conformity	MIL C 55302, ESA/ESCC3401/016 - 3401/017, NF C-UTE C 93-424

How To Order

K	N	B				
1	2	3	4	5	6	7

1 Series

2 Pitch or type

N 1.27 mm pitch, rear removable contacts

3 Model

B 2 rows

4 Number of contacts

017 029 041 053 065 072 084 096 120

For the right angle 053 layout, KNB must be replaced by KXB (non ESA qualified, details on page 20)

5 Moulding polarity

NF C-UTE C 93-424 / MIL-C-55302 / ESA/ESCC 3401/01601B SPACE GRADE				
12	14	54	54	Female plug
13	15	55	55	Male plug
16	18	56	56	Tinned female plug*†
17	19	57	57	Tinned male plug*†

NF C-UTE C 93-424 / MIL-C-55302 / ESA/ESCC 3401/01601B SPACE GRADE				
1A	1C	5A	5A	Tinned female plug**†
1B	1D	5B	5B	Tinned male plug**†
22	24	44	44	Female receptacle
23	25	45	45	Male receptacle

NF C-UTE C 93-424 / MIL-C-55302 / ESA/ESCC 3401/01601B SPACE GRADE				
26	28	46	46	Tinned female receptacle*†
27	29	47	47	Tinned male receptacle*†
2A	2C	–	–	Tinned female receptacle**†
2B	2D	–	–	Tinned male receptacle**†

6 Termination styles

✓	10	Through board solder - 90°- length 3 mm	✓ 30	Through board solder - straight	✓ 51	Wire wrap (3 wrapping levels)
✓	11	Through board solder - 90°- length 4 mm	31	Through board solder - straight	90	Male - male
✓	20	Crimp	✓ 40	Solder bucket	✓ 91	Female - male
	21	Double Crimp				

7 Mounting hardware

Guide Style *(consult us for special guides)*

✓	110	Male polarised, transverse mount, standard plug	✓ 145	Male polarised, transverse mount on receptacle only	✓ 131	Male unpolarised, transverse mount
✓	111	Male polarised, vertical mount	190	Female power or mass contact, vertical mount	✓ 132	Female unpolarised, transverse mount
✓	113	Male polarised, float mount	✓ 125	Male unpolarised, transverse mount	133	Female all polarised, transverse mount
✓	121	Female polarised, vertical mount	✓ 126	Female unpolarised, vertical mount	191	Male power or mass contact, vertical mount
✓	123	Female polarised, float mount	✓ 127	Male unpolarised, vertical mount		
✓	124	Female polarised, transverse mount	130	Female unpolarised, vertical mount		

Locking Styles

MALE PLUG				FEMALE RECEPTACLE					
	201	1/4 turn, free connector			202	1/4 turn, vertical mount	✓	212	Jackscrew, transverse mount
	203	1/4 turn, transverse mount			204	1/4 turn, transverse mount	✓	215	Jackscrew, vertical mount
✓	207	Jackscrew, free connector	✓	208	Jackscrew, transverse mount	✓	219	Jackscrew, vertical mount	
✓	211	Jackscrew, free connector	✓	210	Jackscrew, free connector	✓	232	Jackscrew, with operation button	
✓	290	Jackscrew, vertical mount							

* For 90° & straight terminations (splicing on PCB)

** RoHS compliant for 90° & straight terminations (splicing on PCB)

† Tinned contacts are not available as spares

Hypertac & ESA Correspondance Table

HYPERTAC | KNB

34 01 016 01 B

1 2 3 4 5 6

1 ESCC component number

2 Mounting

HYPERTAC		ESA									
Plug KNB 017	01	Plug KNB 096	08	Receptacle KNB 053	16	Plug KNB 072	56	Plug KNC 098	62
Plug KNB 029	02	Plug KNB 120	10	Receptacle KNB 065	17	Receptacle KNB 072	57	Receptacle KNC 098	63
Plug KNB 041	03	Plug KNC 160	12	Receptacle KNB 084	19	Plug KNC 062	58		
Plug KNB 053	04	Receptacle KNB 017	13	Receptacle KNB 096	20	Receptacle KNC 062	59		
Plug KNB 065	05	Receptacle KNB 029	14	Receptacle KNB 120	22	Plug KNC 080	60		
Plug KNB 084	07	Receptacle KNB 041	15	Receptacle KNC 160	24	Receptacle KNC 080	61		

REMINDER SPATIAL P.P.P. *(Party Polarity Protection)*			
Female receptacle	44	Plug female	54
Male receptacle	45	Plug male	55

EXAMPLE
KNB 029 **44** 40 113
P.P.P.

3 Termination style

HYPERTAC		ESA					
Bent male 10	MC	Solder bucket male 40	MS	Bent female tinned 10	FA	Mini-wrapping female 51	FY
Bent male tinned 10	MA	Mini-wrapping male 51	MY	Crimp female 20	FR	Bent long female 11	FL
Crimp male 20	MR	Bent long male 11	ML	Straight female 30	FD	Bent long female tinned 11	FG
Straight male 30	MD	Bent long male tinned 11	MG	Straight female tinned 30	FE	Female-male 91	FM
Straight male tinned 30	ME	Bent female 10	FC	Solder bucket female 40	FS		

4 Locking type On left side

HYPERTAC		ESA									
Guideless connector	00	KNB 145	40	KNC 10 209	49	KNB 11 125	71	KNB 11 208	79
KNB 131	31	KNB 124	41	KN 210	50	KNB 11 110	72	KN 219	80
KNB 132	32	KNC 10 230	43	KN 211	51	KNB 10 230	73	KN 290*	81
KNB 10 110	33	KN 232	45	KNB 212	52	KNC 124	74		
KNC 10 110	34	KN 231	46	KN 215	53	KNC 132	75		
KN 111	35	KN 207	47	KN 123	54	KNC 11 110	76		
KN 121	36	KNB 10 208	48	KN 113	55	KNC 11 125	77		

5 Locking type In center

0 0 For 2 guide connectors

– – For 3 guide connectors (*see table* **4**, Locking type - On left side)

HYPERTAC		ESA					
KNB 10 125	26	KNC 10 125	27	KN 127	28	KN 126	29

6 Locking type On right side

(*see table* **4**, Locking type - On left side)

* Please consult us

Contact Terminations

Plug

Male

Female

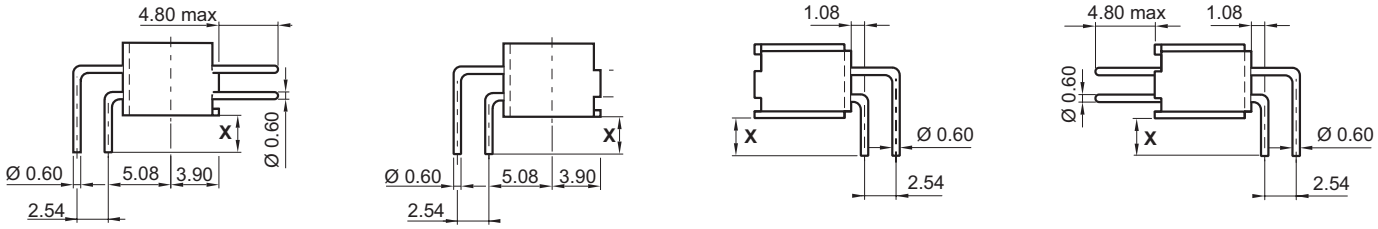
Receptacle

Female

Male

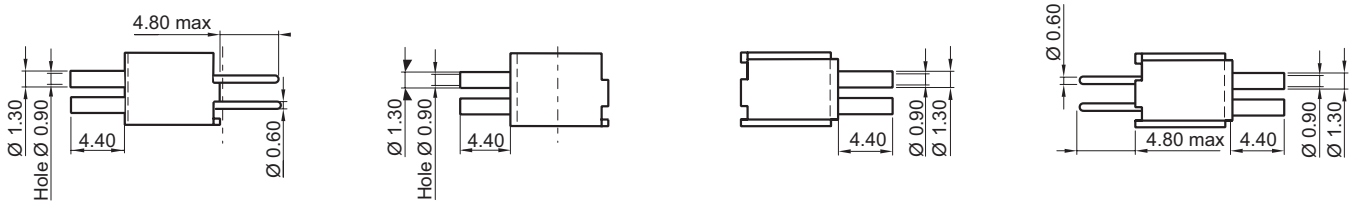
90° Through board solder

Ref: **10** (**X**=3) Ref : **MC** & **FC** / **MA** & **FA** - Ref: **11** (**X**=4) Ref : **ML** & **FL** / **MG** & **FG**



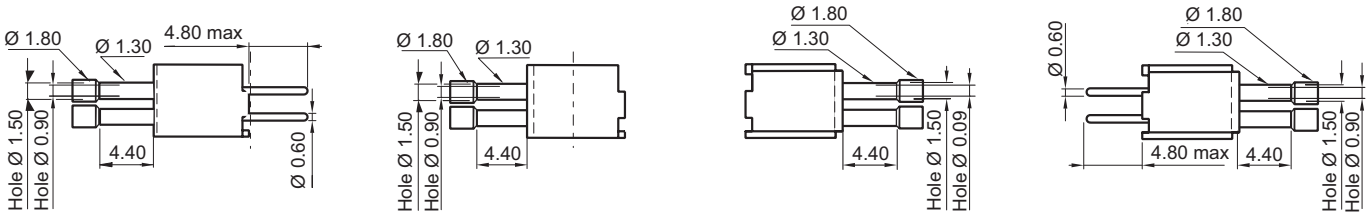
Crimp (AWG 28-26 & 24-22)

Ref: **20** Ref : **MR** & **FR**



Crimp (AWG 28-26 & 24-22) & Crimp on sheath (Ø 1.45)

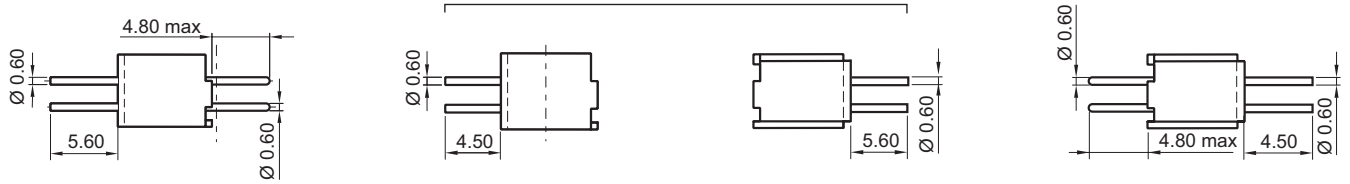
Ref: **21**



Straight through board solder

Ref: **30** Ref : **MD** & **FD** / **ME** & **FE** Ref **31**

See: 90° Through board solder



Contact Terminations

Plug

Male

Female

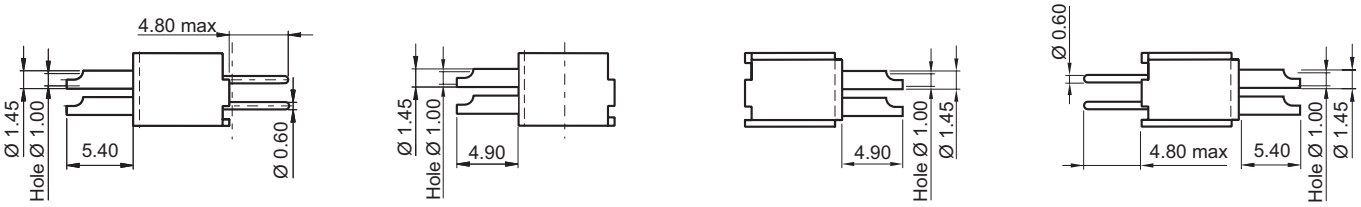
Receptacle

Female

Male

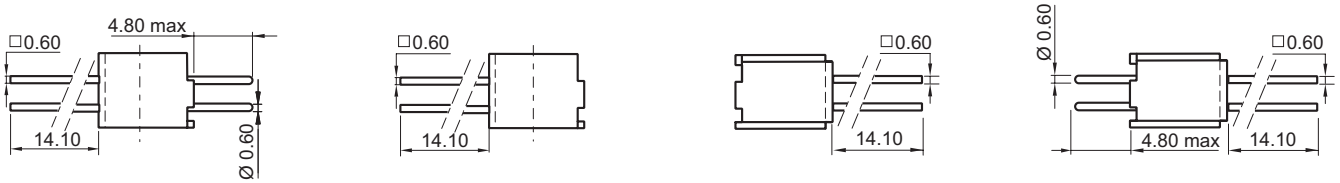
Solder bucket (AWG 22 max)

Ref: **40** Ref : **MS** & **FS**



Wire wrap *(3 wrapping levels)*

Ref: **51** Ref : **MY** & **FY**



Saver *(male-male)*

Ref: **90**

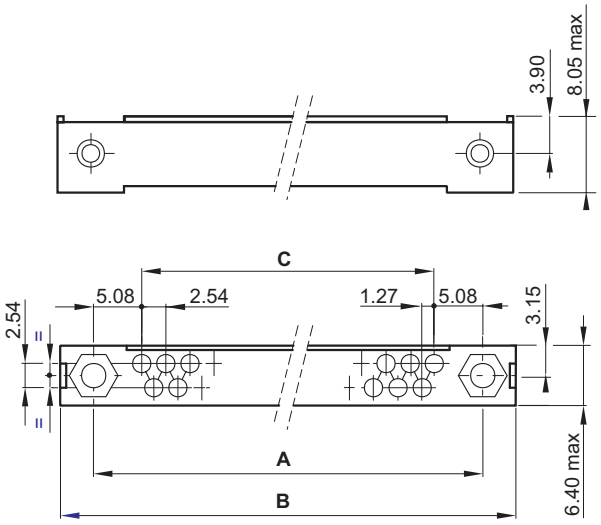
Saver *(female-male)*

Ref: **91** Ref : **FM**

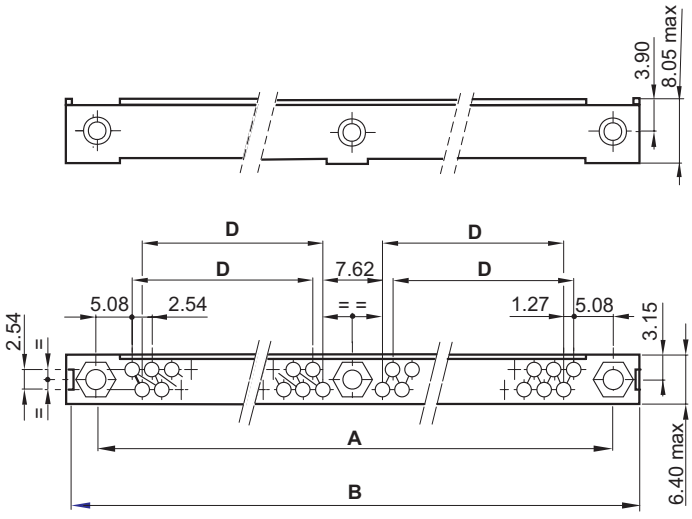
Connector Dimensions

Plug

17 to 65 contacts

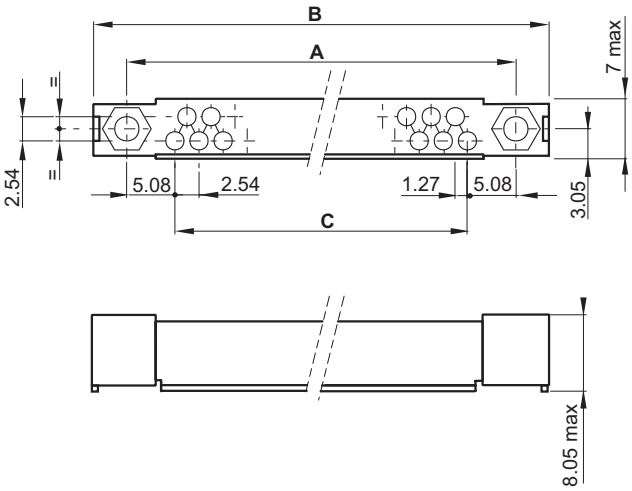


72 to 120 contacts

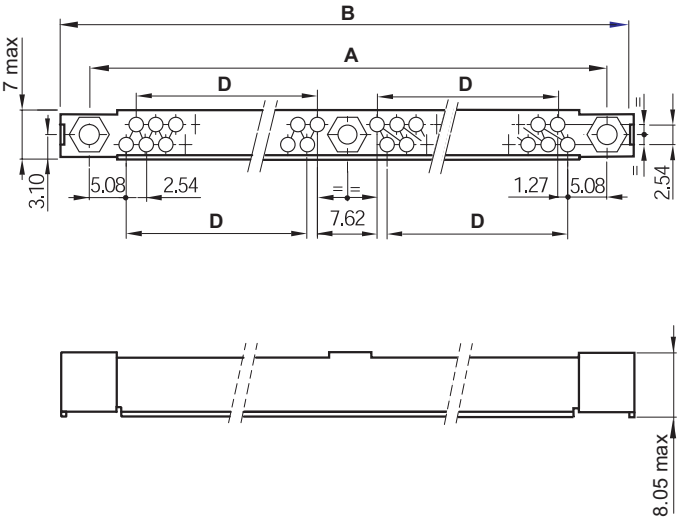


Receptacle

17 to 65 contacts



72 to 120 contacts



No. of contacts	17	29	41	53	65	72	84	96	120
A	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	167.64
B max	38.50	53.70	69.00	84.20	99.50	114.70	129.90	145.20	175.50
C	20.32	35.56	50.80	66.04	81.28	-	-	-	-
D	-	-	-	-	-	43.18	50.80	58.42	73.66

Guide Device and Polarity Termination Compatibility Chart

Legend

Compatible

Compatible special saver connector

FP = Female Plug

FR = Female Receptacle

MR = Male Receptacle

Polarity			
Moulding	Receptacle		
	Plug		
Contact	90°	10	11
	Straight	30	31
	Solder bucket		40
	Cripm	20	21
	Wire wrap		51

Male guides

Guiding devices

Polarity	Moulding: Receptacle	Moulding: Plug	Contact: 90° (10 / 11)	Contact: Straight (30 / 31)	Contact: Solder bucket (40)	Contact: Crimp (20 / 21)	Contact: Wire wrap - PPC (51)	Guiding devices
FP 12	●							191
MP 13		●						
MR 23	●							145
FR 22		●						
MR 23	●							131
FR 22		●						
FP 12	●				●	●	●	127
MP 13		●			●	●	●	
MR 23	●				●	●	●	
FR 22		●			●	●	●	
FP 12	●		●	●				125
MP 13		●	●	●				
FP 12	●				●	●	●	113
MP 13		●			●	●	●	
MR 23	●				●	●	●	
FR 22		●			●	●	●	
FP 12	●			●	●	●	●	111
MP 13		●		●	●	●	●	
MR 23	●			●	●	●	●	
FR 22		●		●	●	●	●	
FP 12	●		●					110
MP 13		●	●					
			10	30		20		
			11	31	40	21	51	
								190 / 133 / 132 / 130 / 126 / 124 / 123 / 121

Female guides

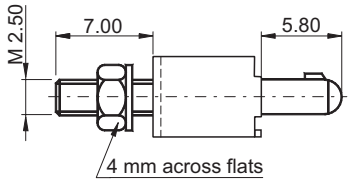
Guide Styles

Plug & Receptacle

Male

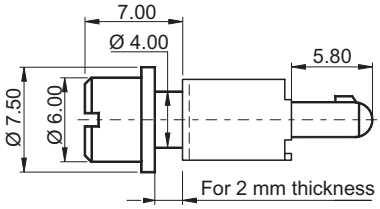
Polarised vertical mount

Ref: 111 Ref : 35



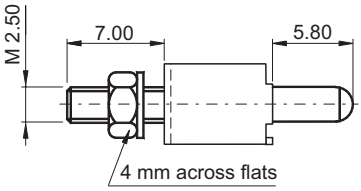
Polarised vertical float mount

Ref: **113** Ref : **55**



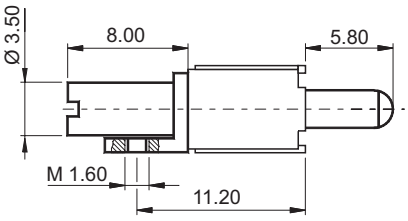
Unpolarised vertical mount

Ref: **127** Ref : **28**



Unpolarised transverse mount

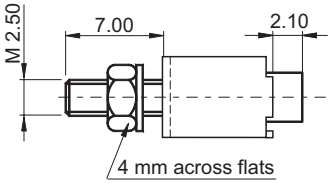
Ref: **131** Ref : **31**



Female

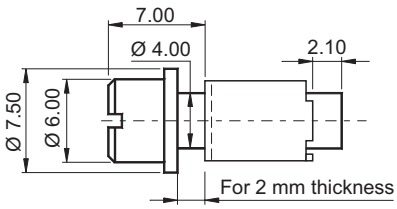
Polarised vertical mount

Ref: **121** Ref : **36**



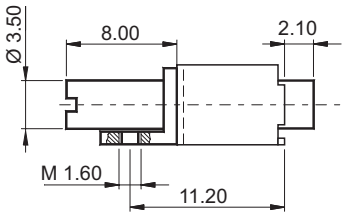
Polarised vertical float mount

Ref: **123** Ref : **54**



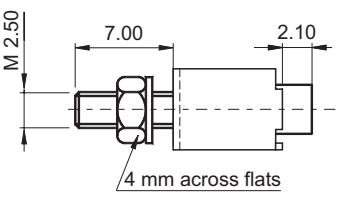
Polarised transverse mount

Ref: **124** Ref : **41**



Unpolarised vertical mount

Ref: **126** Ref : **29**



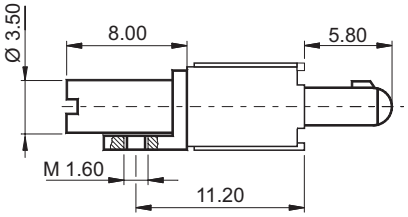
Guide Styles

Plug & Receptacle

Male

Polarised transverse mount

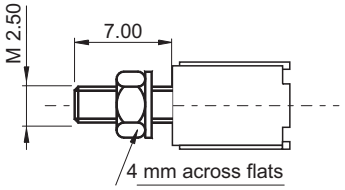
Ref: **145** Ref : 40



Female

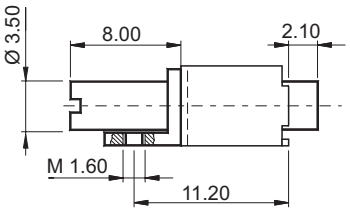
All polarised vertical mount

Ref: **130**



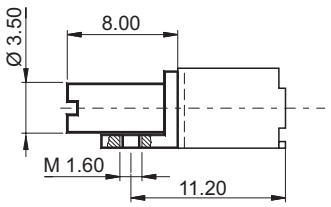
Unpolarised transverse mount

Ref: **132** Ref : **32**



All polarised transverse mount

Ref: **133**



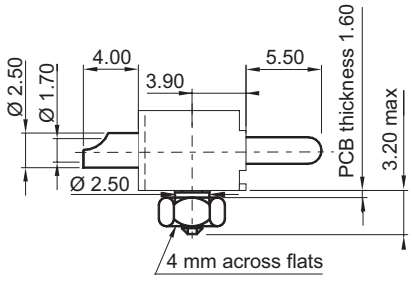
Guide Styles

Plug & Receptacle

Male

Power or mass transverse mount

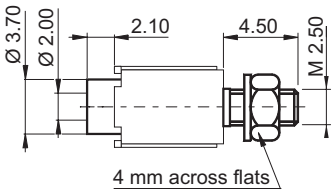
Ref: **191**



Female

Power or mass vertical mount

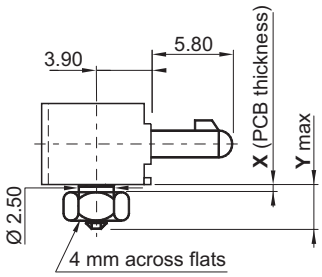
Ref: **190**



Plug Only

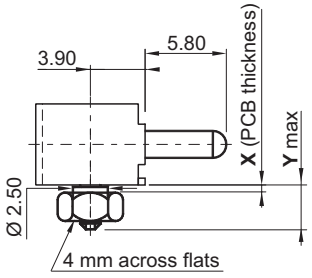
Polarised transverse mount

Ref: **10 110** Ref : **33 X=1.60 Y=3.20**
Ref: **11 110** Ref : **72 X=2.40 Y=4.90**



Unpolarised transverse mount

Ref: **10 125** Ref : **26 X=1.60 Y=3.20**
Ref: **11 125** Ref : **71 X=2.40 Y=4.90**



Locking Device Compatibility Chart

Compatible

R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	Receptacle	Plug	Moulding
P	R																	290
P	R																	231
P	R																	211
P	R																	207
P	R																	205
P	R																	203
P	R																	201
Receptacle / Plug																		
Moulding		232		219		215		212		210		208		204		202		

Male locking devices

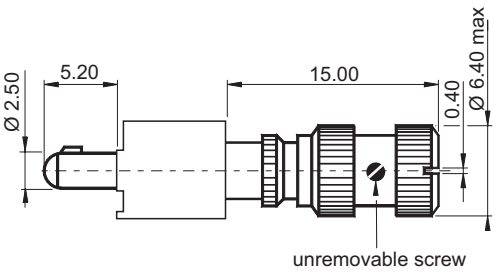
Female locking devices

Male Locking Styles

Plug & Receptacle

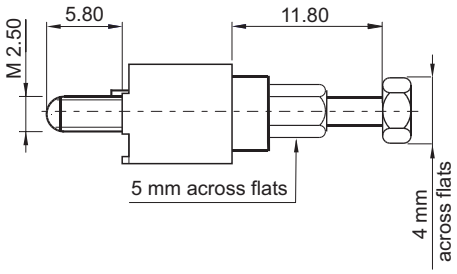
Jack 1/4 turn lock, free connector

Ref: **201**



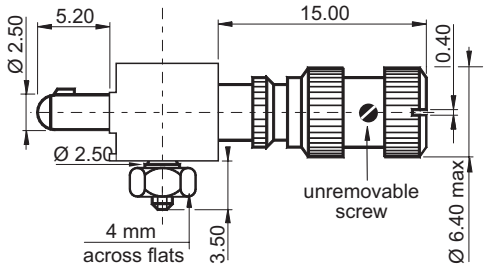
Jackscrew, free connector

Ref: **211** Ref : **51**



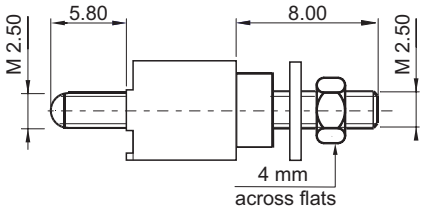
Jack 1/4 turn lock, transverse mount

Ref: **203** PCB thickness **1.60**



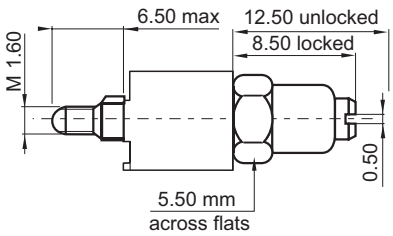
Jackscrew, vertical mount

Ref: **231** Ref : **46**



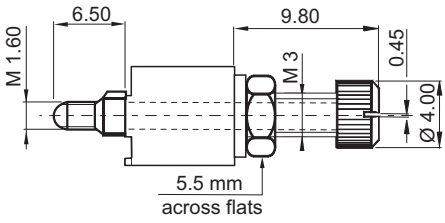
Jackscrew, free connector

Ref: **207** Ref : **47**



Jackscrew, vertical mount

Ref: **290** Ref : **81**

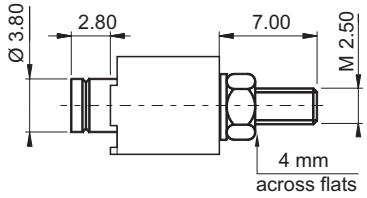


Female Locking Styles

Plug & Receptacle

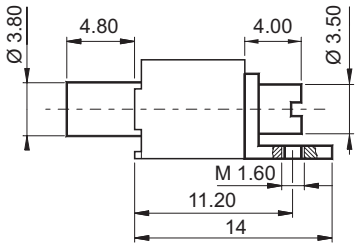
Jack 1/4 turn lock, vertical mount

Ref: **202**



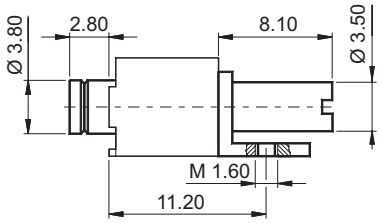
Jackscrew, transverse mount

Ref: **212** Ref : **52**



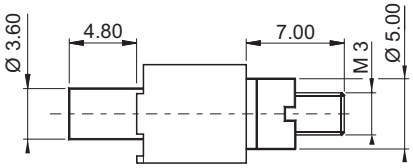
Jack 1/4 turn lock, transverse mount

Ref: **204**



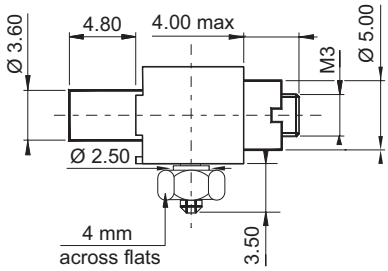
Jackscrew, vertical mount

Ref: **215** Ref : **53**



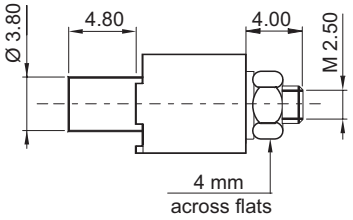
Jackscrew, transverse mount

Ref: **10 208** Ref : **48** PCB thickness 1.60
Ref: **11 208** Ref : **79** PCB thickness 2.40



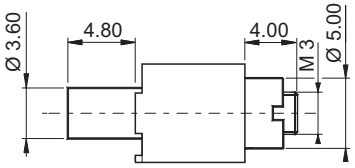
Jackscrew, vertical mount

Ref: **219** Ref : **80**



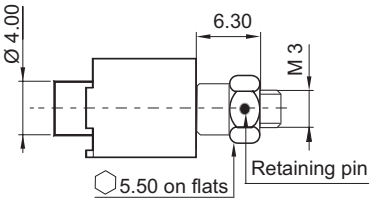
Jackscrew, free connector

Ref: **210** Ref : **50**



Rotating jackscrew, free connector

Ref: **232** Ref : **45**

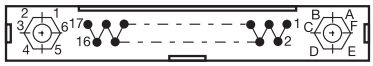


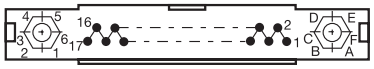
Mating Side Layout View

Plug

Receptacle

017





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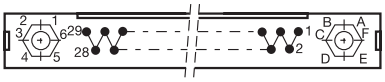

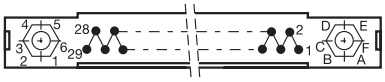

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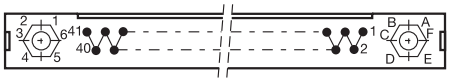
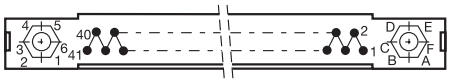
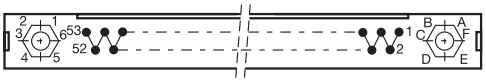
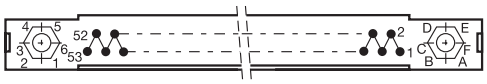




053





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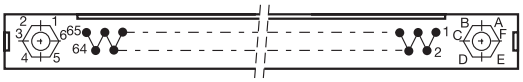

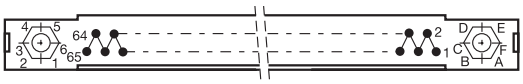

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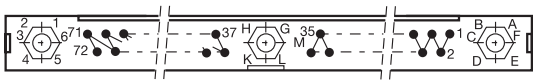

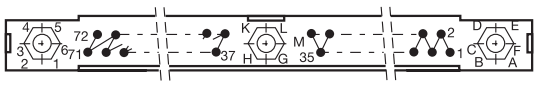

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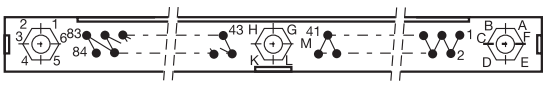
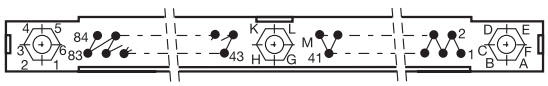
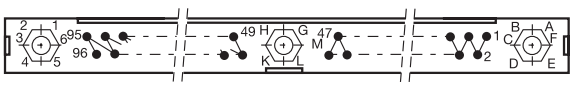
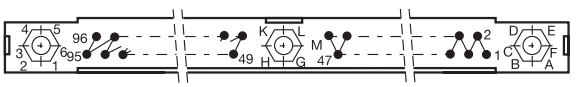




096





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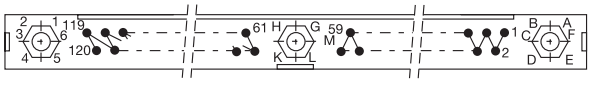
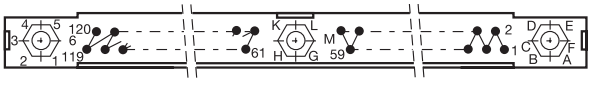
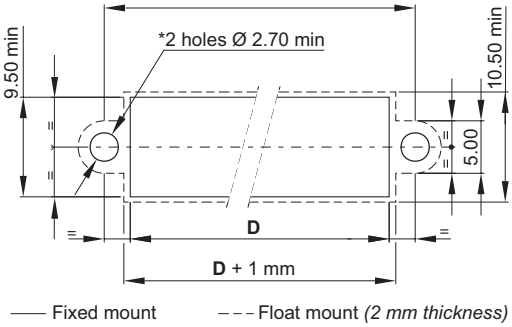


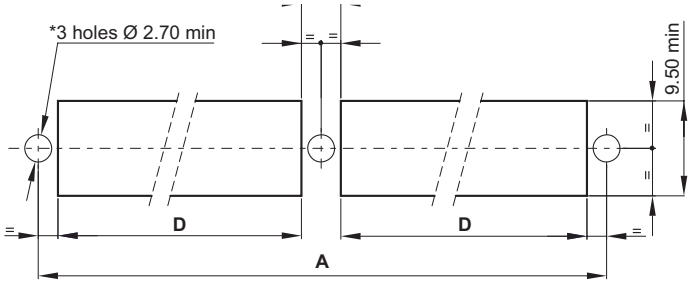


Panel Preparation Details

17 to 65 Contacts



72 to 120 Contacts



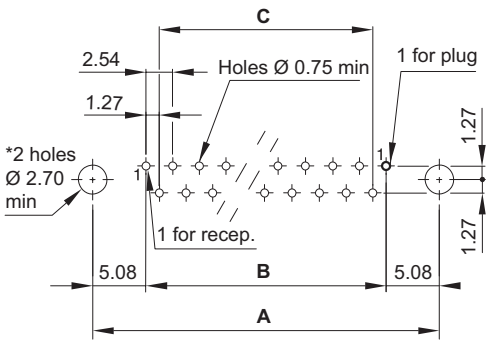
Panel: female or male, plug or receptacle, terminations 20 - 40 - 51
Guide styles: 111 - 121 - 126 - 127 - 130 - 190 (Fixed Mount) - 113 - 123 (Float Mount)
Locking styles: 202 - 215* - 219 - 231
*: for ref: 215, holes Ø 3.20 mm

No. of contacts	17	29	41	53	65	72	84	96	120
A	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	167.64
D	25.90	41.10	56.40	71.60	86.90	48.50	56.00	63.30	78.80

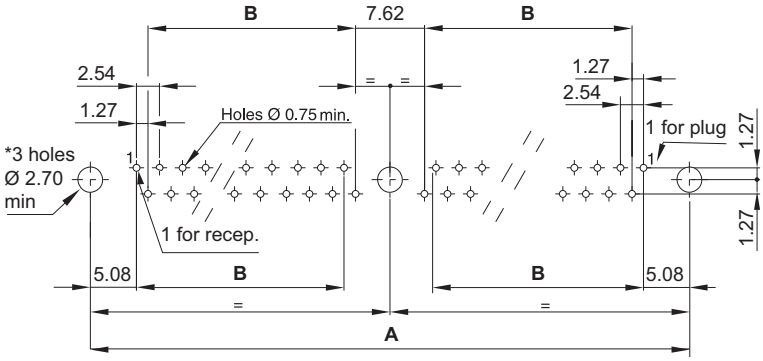
Board Preparation Details

Mother board

17 to 65 Contacts



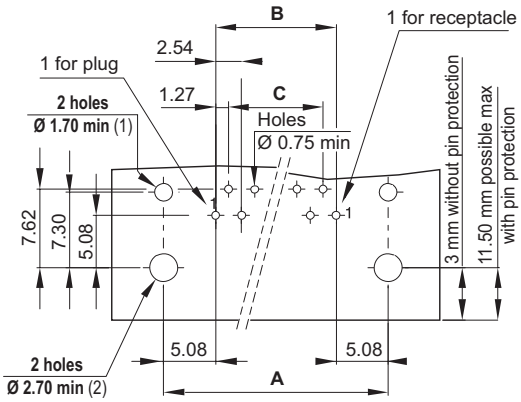
72 to 120 Contacts



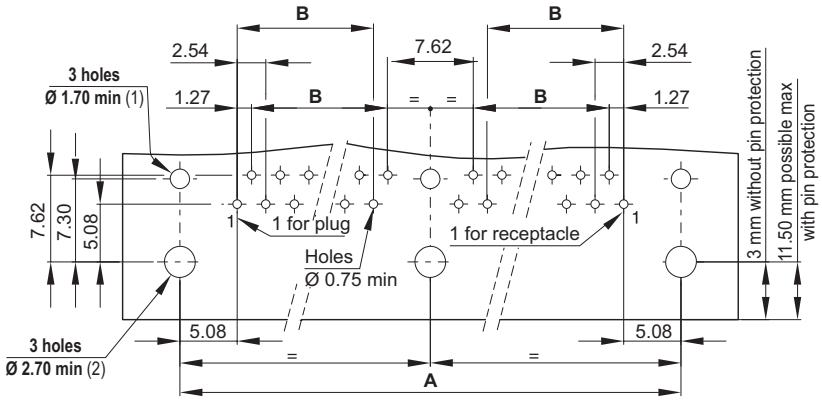
Mother Board: female or male, plug or receptacle, straight solder termination
Guide styles: 111 - 121 - 126 - 127 - 130 - 190 Locking styles: 202 - 215* - 219 - 231
*: for ref: 215, holes Ø 3.20 mm

Daughter board

17 to 65 Contacts



72 to 120 Contacts



Daughter Board: female or male, plug or receptacle, 90° termination
(1) **Guide styles**: 124 - 131 - 132 - 133 - 145 Locking styles: 204 - 212
(2) **Guide styles**: 110 - 125 - 191 Locking styles: 203 - 208

No. of contacts	17	29	41	53	65	72	84	96	120
A	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	167.64
B	20.32	35.56	50.80	66.04	81.28	43.18	50.80	58.42	73.66
D	17.78	33.02	48.26	63.50	78.74	–	–	–	–

Technical Characteristics

Contact diameter	HYPERTAC® type Ø 0.60 mm rear removable
Number of contact	53
Pitch	2.54 mm between rows - 1.27 mm between quicuncial contacts
Rows	2

Materials & Platings

Contact	Brass or bronze
Moulding	Glass fiber filled diallyl - Phtalate
Guides	Stainless steel or nickel plated brass
Pin body	0.25 µm gold / 1.27 µm Ni
Socket body	0.25 µm gold / 1.27 µm Ni on active area; 1.27 µm Ni on non active area
Socket wires	1 µm gold / 0.20 µm Ni

Electrical

Current rating (at 25°C)	3 A max.
Dielectric withstanding voltage	1200 Vrms
Contact resistance	≤8 mΩ
Insulation resistance	>104 MΩ (500 Vcc)

Mechanical

Mating & unmating cycle	5000
Guiding	By two outside guides (2 guiding styles) and one central guide (3 guiding styles)
Keying	By rotating of outside polarised guides (up to 36 keying)

Environmental

Temperature range	−55°C to 125°C
Conformity	NF C-UTE C 93-424

How To Order

KXB	053			
1		2	3	4

1 Thermoplastic material

X

2 Moulding polarity

NF C-UTE C 93-424 / MIL-C-55302 / SPACE GRADE			NF C-UTE C 93-424 / MIL-C-55302 / SPACE GRADE			NF C-UTE C 93-424 / MIL-C-55302 / SPACE GRADE		
12	14	54 Female plug	1A	1C	5A Tinned female plug**	26	28	46 Tinned female receptacle*
13	15	55 Male plug	1B	1D	5B Tinned male plug**	27	29	47 Tinned male receptacle*
16	18	56 Tinned female plug*	22	24	44 Female receptacle	2A	2C	– Tinned female receptacle**
17	19	57 Tinned male plug*	23	25	45 Male receptacle	2B	2D	– Tinned male receptacle**

3 Termination styles

10 Through board solder - 90°- length 3 mm	13 Through board solder - 90° - length 2.3 mm, plug only
11 Through board solder - 90°- length 4 mm	14 Through board solder - 90° - length 8 mm, receptacle only
12 Through board solder - 90° - length 5.1 mm, plug only	

4 Mounting hardware

Guide Style***

110 Male polarised, transverse mount, standard plug	131 Male unpolarised, transverse mount
121 Female polarised, vertical mount	145 Male polarised, transverse mount on receptacle only
124 Female polarised, transverse mount	191 Male power or mass contact, vertical mount
125 Male unpolarised, transverse mount	

Locking Styles***

FEMALE RECEPTACLE

204 1/4 turn, transverse mount

218 Jackscrew, transverse mount

MALE PLUG

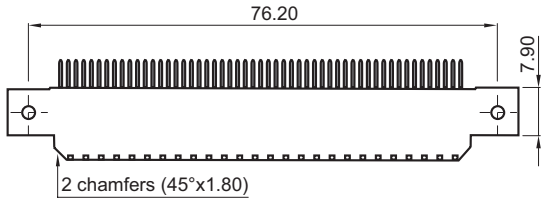
203 1/4 turn, transverse mount

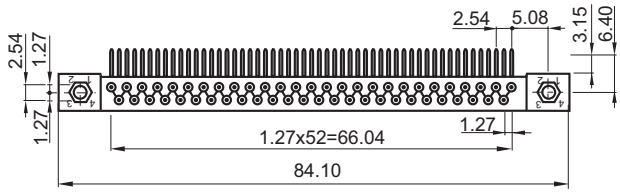
* No RoHS compliant = 16 et 17

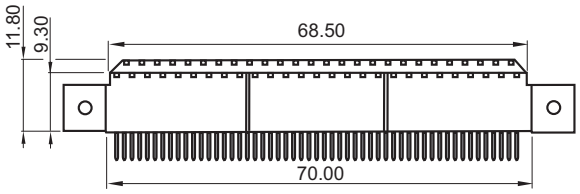
** RoHS Compliant = 1A et 1B

Connector Dimensions

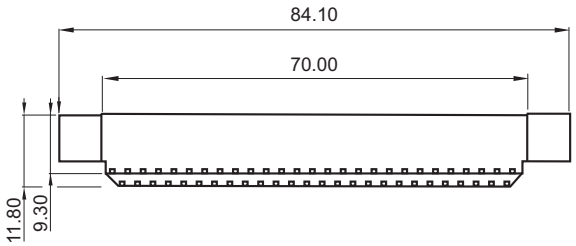
Plug

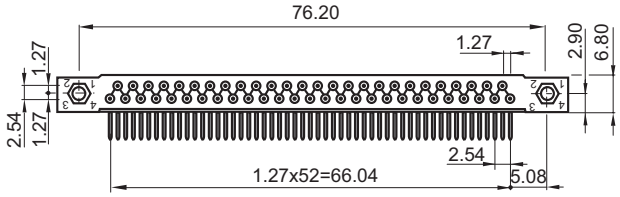


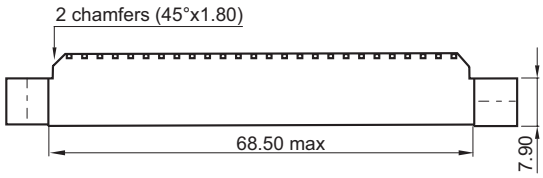




Receptacle







Technical Characteristics

Contact diameter	HYPERTAC® type Ø 0.60 mm rear removable	
Number of contact	Up to 160	
Pitch	2.54 mm between rows - 1.27 mm between quicuncial contacts	
Rows	3	

Materials & Platings

Contact	Brass or bronze	
Moulding	Glass fiber filled diallyl - Phtalate	
Guides	Stainless steel or nickel plated brass	
	Standard	**ESA**
Pin body	0.25 µm gold / 1.27 µm Ni	1.27 µm gold / 1.27 µm Ni (min)
Socket body	0.25 µm gold / 1.27 µm Ni on active area 1.27 µm Ni on non active area	0.25 µm gold / 1.27 µm Ni (min)
Socket wires	1 µm gold / 0.20 µm Ni	1.27 µm gold / 0.20 µm Ni (min)

Electrical

Current grade rating (at 25°C)	Standard grade: 3 A max. - ESA grade: 5 A max.
Dielectric withstanding voltage	1200 Vrms
Contact resistance	≤8 mΩ
Insulation resistance	>104 MΩ (500 Vcc)

Mechanical

Mating & unmating cycle	5000
Guiding	By two outside guides (2 guiding styles) and one central guide (3 guiding styles)
Keying	By rotating of outside polarised guides (up to 36 keying)

Environmental

Temperature range	–55°C to 125° C
Conformity	MIL C 55302, ESA/ESCC3401/016 - 3401/017, NF C-UTE C 93-424

How To Order

K	N													
1			2		3	4			5			6			7		

1 Series

2 Pitch or type

N 1.27 mm pitch, rear removable contacts

3 Model

C 3 rows centered fixing

D 3 rows uncentered fixing

4 Number of contacts

KNC	062	080	098	160				
KND	026	044	062	080	098	108	126	144

5 Moulding polarity

NF C-UTE C 93-424 MIL-C-55302 ESA/ESCC 3401/01601B SPACE GRADE				
12	14	54	54	Female plug
13	15	55	55	Male plug
16	18	56	56	Tinned female plug*†
17	19	57	57	Tinned male plug*†

NF C-UTE C 93-424 MIL-C-55302 ESA/ESCC 3401/01601B SPACE GRADE				
1A	1C	5A	5A	Tinned female plug**†
1B	1D	5B	5B	Tinned male plug**†
22	24	44	44	Female receptacle
23	25	45	45	Male receptacle

NF C-UTE C 93-424 MIL-C-55302 ESA/ESCC 3401/01601B SPACE GRADE				
26	28	46	46	Tinned female receptacle*†
27	29	47	47	Tinned male receptacle*†
2A	2C	–	–	Tinned female receptacle**†
2B	2D	–	–	Tinned male receptacle**†

6 Termination styles

10 Through board solder - 90°- length 3 mm	21 Double crimp	51 Wire wrap (3 wrapping levels)
11 Through board solder - 90°- length 4 mm	30 Through board solder - straight	90 Male - male
20 Crimp	40 Solder bucket	91 Female - male

7 Mounting hardware

Guide Style *(consult us for special guides)*

110 Male polarised, transverse mount, standard plug	145 Male polarised, transverse mount on receptacle only	131 Male unpolarised, transverse mount
111 Male polarised, vertical mount	190 Female power or mass contact, vertical mount	132 Female unpolarised, transverse mount
113 Male polarised, float mount	125 Male unpolarised, transverse mount	133 Female all polarised, transverse mount
121 Female polarised, vertical mount	126 Female unpolarised, vertical mount	191 Male power or mass contact, vertical mount
123 Female polarised, float mount	127 Male unpolarised, vertical mount	
124 Female polarised, transverse mount	130 Female unpolarised, vertical mount	

Locking Styles

MALE PLUG	FEMALE RECEPTACLE	
201 1/4 turn, free connector	202 1/4 turn, vertical mount	212 Jackscrew, transverse mount
203 1/4 turn, transverse mount	204 1/4 turn, transverse mount	215 Jackscrew, vertical mount
207 Jackscrew, free connector	208 Jackscrew, transverse mount	219 Jackscrew, vertical mount
211 Jackscrew, free connector	210 Jackscrew, free connector	232 Jackscrew, with operation button
290 Jackscrew, vertical mount		

* For 90° & straight terminations (splicing on PCB)

** RoHS compliant for 90° & straight terminations (splicing on PCB)

† Tinned contacts are not available as spares

Hypertac & ESA Correspondance Table

HYPERTAC | KNC

34 01 016 01 B

1 2 3 4 5 6

1 ESCC component number

2 Mounting

HYPERTAC		ESA									
Plug KNB 017	01	Plug KNB 096	08	Receptacle KNB 053	16	Plug KNB 072	56	Plug KNC 098	62
Plug KNB 029	02	Plug KNB 120	10	Receptacle KNB 065	17	Receptacle KNB 072	57	Receptacle KNC 098	63
Plug KNB 041	03	Plug KNC 160	12	Receptacle KNB 084	19	Plug KNC 062	58		
Plug KNB 053	04	Receptacle KNB 017	13	Receptacle KNB 096	20	Receptacle KNC 062	59		
Plug KNB 065	05	Receptacle KNB 029	14	Receptacle KNB 120	22	Plug KNC 080	60		
Plug KNB 084	07	Receptacle KNB 041	15	Receptacle KNC 160	24	Receptacle KNC 080	61		

REMINDER SPATIAL P.P.P. *(Party Polarity Protection)*			
Female receptacle	44	Plug female	54
Male receptacle	45	Plug male	55

EXAMPLE
KNC 062 **44** 30 113
P.P.P.

3 Termination style

HYPERTAC		ESA					
Bent male 10	MC	Solder bucket male 40	MS	Bent female tinned 10	FA	Mini-wrapping female 51	FY
Bent male tinned 10	MA	Mini-wrapping male 51	MY	Crimp female 20	FR	Bent long female 11	FL
Crimp male 20	MR	Bent long male 11	ML	Straight female 30	FD	Bent long female tinned 11	FG
Straight male 30	MD	Bent long male tinned 11	MG	Straight female tinned 30	FE	Female-male 91	FM
Straight male tinned 30	ME	Bent female 10	FC	Solder bucket female 40	FS		

4 Locking type On left side

HYPERTAC		ESA									
Guideless connector	00	KNB 145	40	KNC 10 209	49	KNB 11 125	71	KNB 11 208	79
KNB 131	31	KNB 124	41	KN 210	50	KNB 11 110	72	KN 219	80
KNB 132	32	KNC 10 230	43	KN 211	51	KNB 10 230	73	KN 290*	81
KNB 10 110	33	KN 232	45	KNB 212	52	KNC 124	74		
KNC 10 110	34	KN 231	46	KN 215	53	KNC 132	75		
KN 111	35	KN 207	47	KN 123	54	KNC 11 110	76		
KN 121	36	KNB 10 208	48	KN 113	55	KNC 11 125	77		

5 Locking type In center

0 0 For 2 guide connectors

– – For 3 guide connectors (*see table* **4**, Locking type - On left side)

HYPERTAC		ESA				
KNB 10 125	26	KNC 10 125	27	KN 127	28	KN 126	29

6 Locking type On right side

(*see table* **4**, Locking type - On left side)

* Please consult us

Contact Terminations

Plug

Male

Female

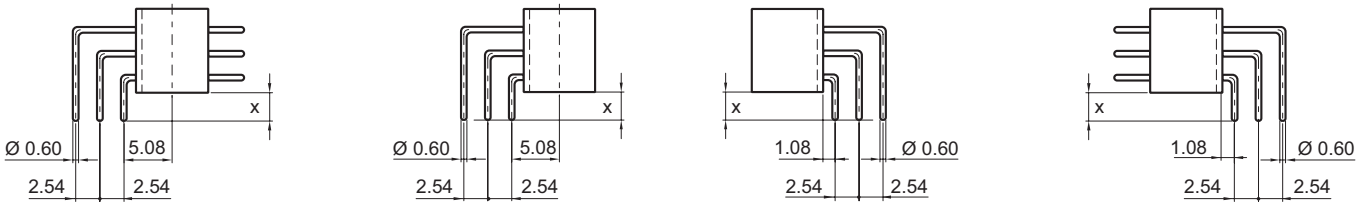
Receptacle

Male

Female

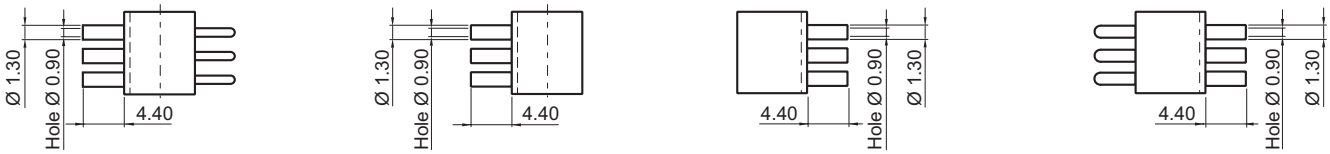
90° Through board solder

Ref: **10** (**X**=3) Ref : **MC** & **FC / MA & FA** - Ref: **11** (**X**=4) Ref : **ML** & **FL / MG** & **FG**



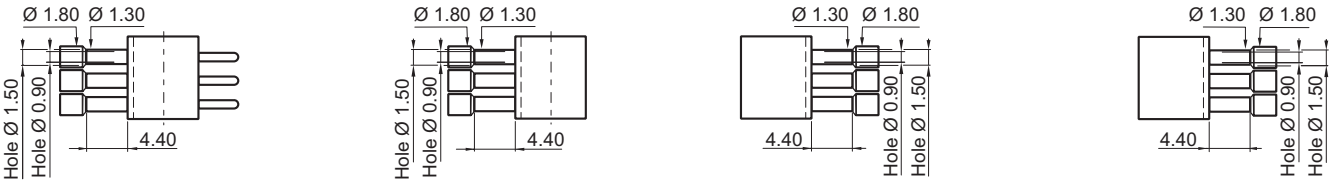
Crimp (AWG 28-22)

Ref: **20** Ref : **MR** & **FR**



Crimp (AWG 28-22)

Ref: **21**



Straight through board solder

Ref: **30** Ref : **MD** & **FD/ ME** & **FE**

Contact Terminations

Plug

Male

Female

Receptacle

Male

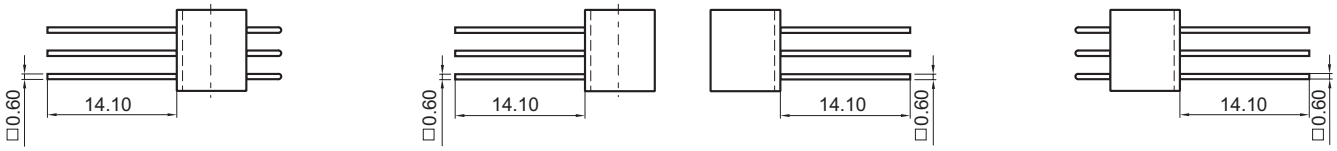
Female

Solder bucket (AWG 22 max)

Ref: **40** Ref : **MS** & **FS**

Wire wrap (3 wrapping levels)

Ref: **51** Ref : **MY** & **FY**



Saver (male-male)

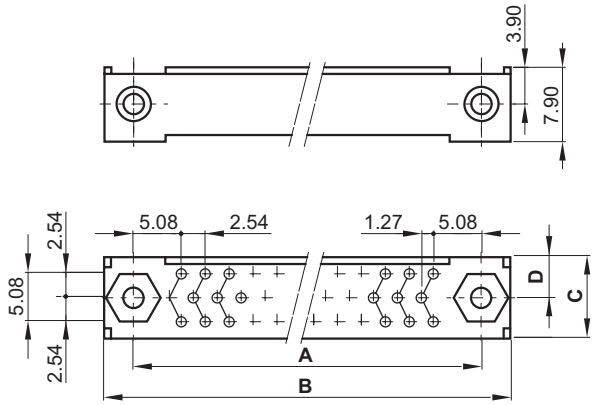
Ref: **90**

Saver (female-male)

Ref: **91** Ref : **FM**

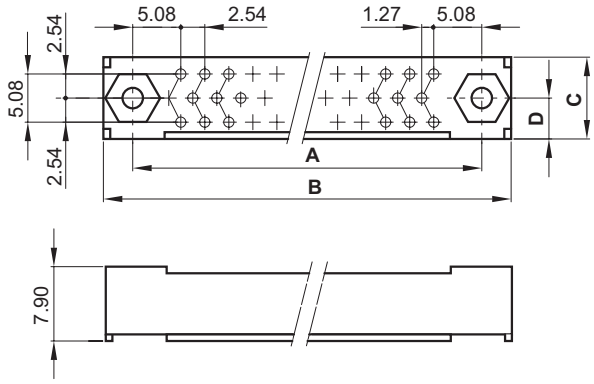
Dimensions

Plug

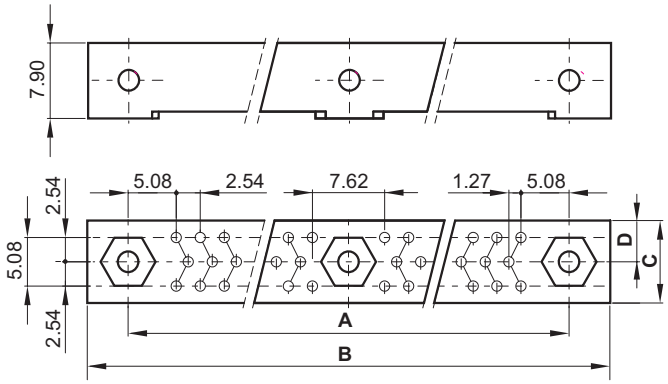


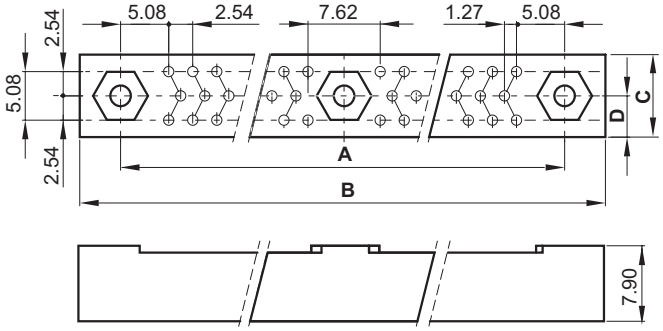
Receptacle

26 to 98 contacts



108 to 160 contacts





	No. of contacts		26	44	62	80	98	108	126	144	160
KNC	Plug & Receptacle	A	–	–	60.96	76.20	91.44	–	–	–	149.86
		B max	–	–	69.00	84.20	99.50	–	–	–	158.00
	Plug	C max	–	–	9.45	9.45	9.45	–	–	–	9.30
		D	–	–	4.42	4.42	4.42	–	–	–	4.70
	Receptacle	C max	–	–	9.30	9.30	9.30	–	–	–	9.30
		D	–	–	4.17	4.17	4.17	–	–	–	4.70
KND	Plug & Receptacle	A	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	–
		B max	38.50	53.70	69.00	84.20	99.50	114.70	129.90	145.20	–
	Plug	C min	8.95	8.95	8.95	8.95	8.95	8.95	8.95	8.95	–
		C max	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	–
		D	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	–
	Receptacle	C max	9.35	9.35	9.35	9.35	9.35	9.35	9.35	9.35	–
		D	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	–

Guide Device and Polarity Termination Compatibility Chart

Legend

Compatible

Compatible special saver connector

FP = Female Plug

FR = Female Receptacle

MR = Male Receptacle

Polarity			Moulding
Receptacle			
Plug			
90°	10	11	Contact
Straight	30	31	
Solder bucket		40	
Cripm	20	21	
Wire wrap		51	

Polarity: MR 23, FR 22, FP 12, MP 13

Guiding devices

191	
145	
131	
127	
125	
113	
111	
110	

Male guides

Female guides

Guiding devices	190	133	132	130	126	124	123	121
Contact: 90°	10							
Contact: Straight	30							
Contact: Solder bucket								
Contact: Crimp	20							
Contact: Wire wrap - PPC								
Moulding: Receptacle	11	31	40	21	51			
Moulding: Plug	11	31	40	21	51			

Polarity: FP 12, MP 13, MR 23, FR 22

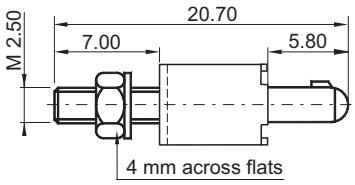
Guide Styles

Plug & Receptacle

Male

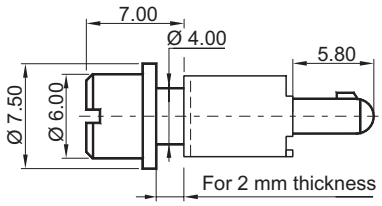
Polarised vertical mount

Ref: **111** Ref : **35**



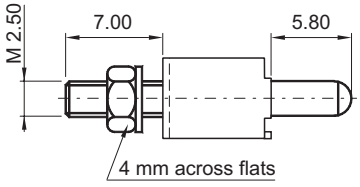
Polarised vertical float mount

Ref: **113** Ref : **55**



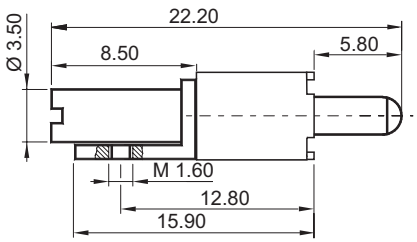
Unpolarised vertical mount

Ref: **127** Ref : **28**



Unpolarised transverse mount

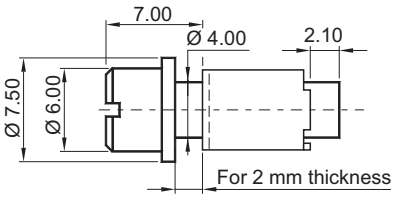
Ref: **131**



Female

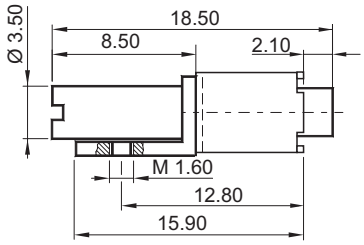
Polarised vertical float mount

Ref: **123** Ref : **54**



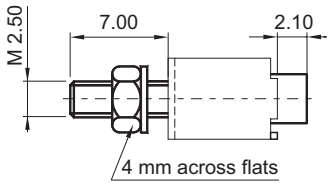
Polarised transverse mount

Ref: **124** Ref : **74**



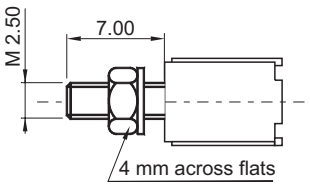
Unpolarised vertical mount

Ref: **126** Ref : **29**



All polarised vertical mount

Ref: **130**



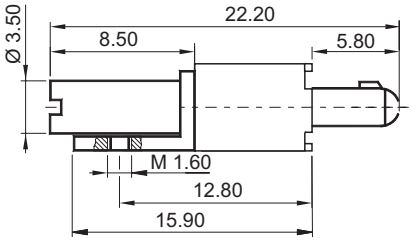
Guide Styles

Plug & Receptacle

Male

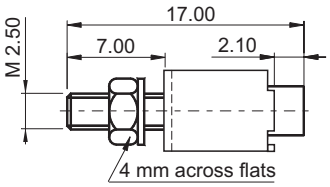
Polarised transverse mount

Ref: **145**



Polarised vertical mount

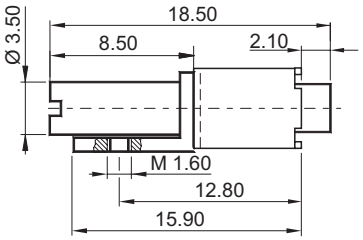
Ref: **121** Ref : **36**



Female

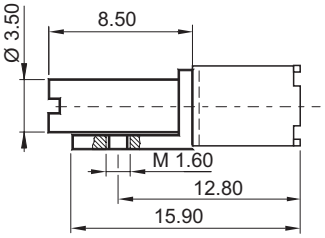
Unpolarised transverse mount

Ref: **132** Ref : **75**



All polarised transverse mount

Ref: **133**



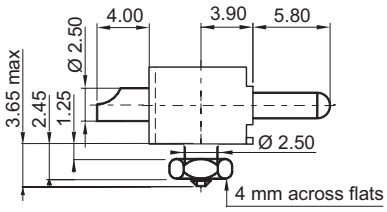
Guide Styles

Plug & Receptacle

Male

Power or mass vertical mount

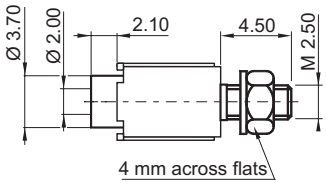
Ref: **191** PCB thickness **1.60**



Female

Power or mass vertical mount

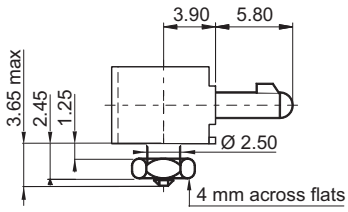
Ref: **190**



Male plug only

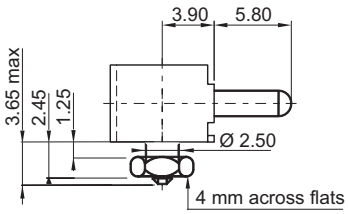
Polarised transverse mount

Ref: **10 110** Ref : **34** PCB thickness **1.60**



Unpolarised transverse mount

Ref: **10 125** Ref : **27** PCB thickness **1.60**



Locking Devices Compatibility Chart

Compatible

P	R	Receptacle	Plug	Moulding
P	R			290
P	R			231
P	R			211
P	R			207
P	R			205
P	R			203
P	R			201

Male locking devices

Receptacle	Plug	Moulding	232	219	215	212	210	208	204	202

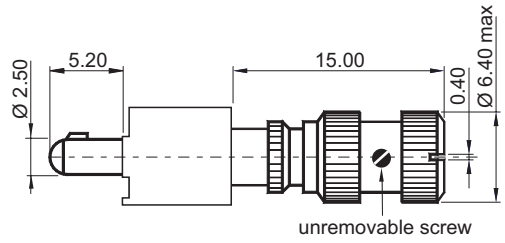
Female locking devices

Male Locking Styles

Plug & Receptacle

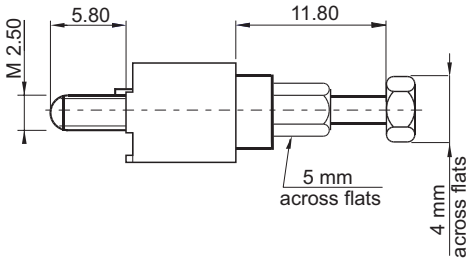
Jack 1/4 turn lock, free connector

Ref: **201**



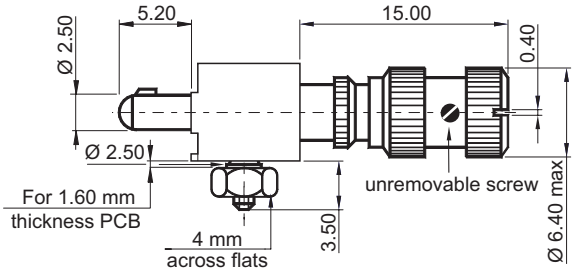
Jackscrew, free connector

Ref: **211** Ref : **51**



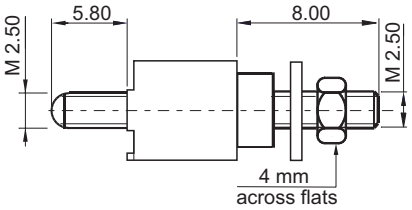
Jack 1/4 turn lock, transverse mount

Ref: **206**



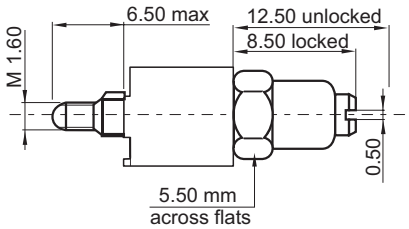
Jackscrew, vertical mount

Ref: **231** Ref : **46**



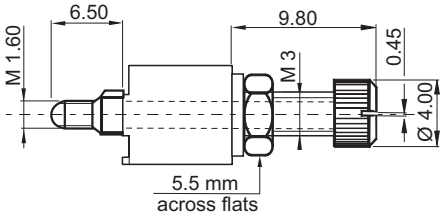
Jackscrew, free connector

Ref: **207** Ref : **47**



Jackscrew, vertical mount

Ref: **290** Ref : **81**

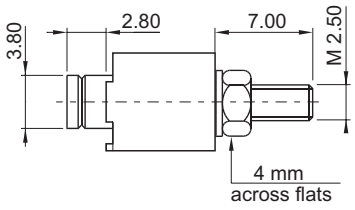


Female Locking Styles

Plug & Receptacle

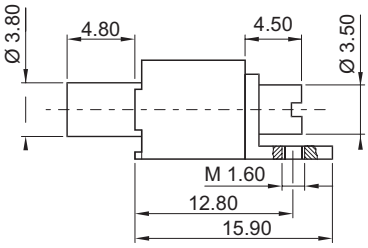
Jack 1/4 turn lock, vertical mount

Ref: **202**



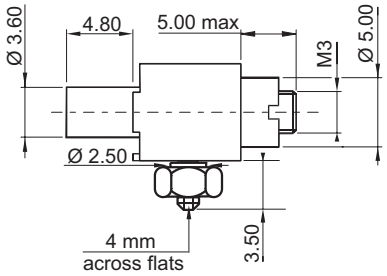
Jackscrew, transverse mount

Ref: **212**



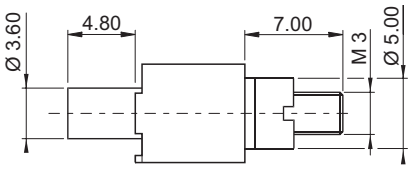
Jackscrew, transverse mount

Ref: **10 209** Ref : **49** PCB thickness 1.60



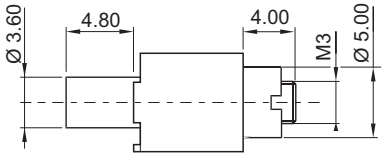
Jackscrew, vertical mount

Ref: **215** Ref : **53**



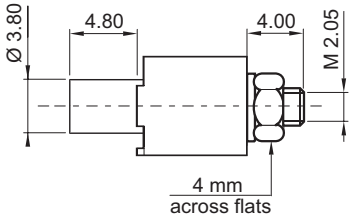
Jackscrew, free connector

Ref: **210** Ref : **50**



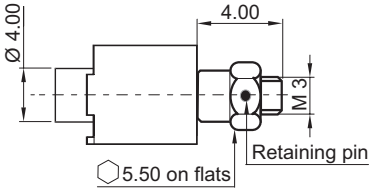
Jackscrew, vertical mount

Ref: **219** Ref : **80**



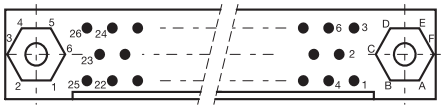
Rotating jackscrew

Ref: **232**

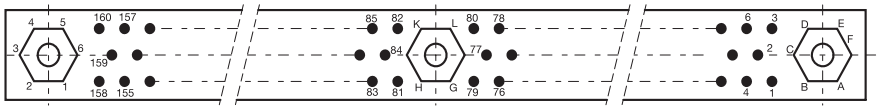


Receptacle Mating Side Layout View

26 to 98 contacts

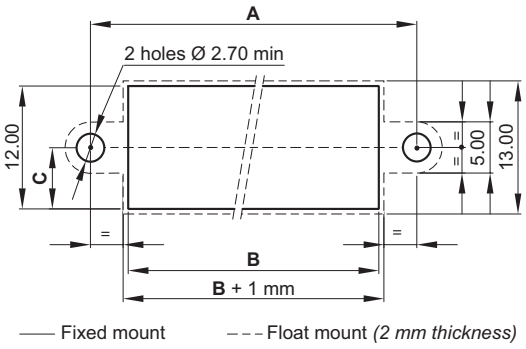


108 to 160 contacts

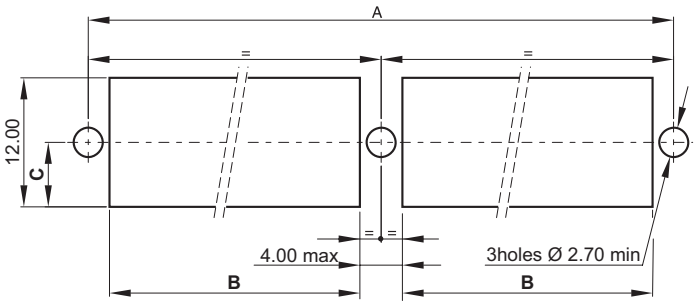


Panel Preparation Details

26 to 98 contacts



108 to 160 contacts



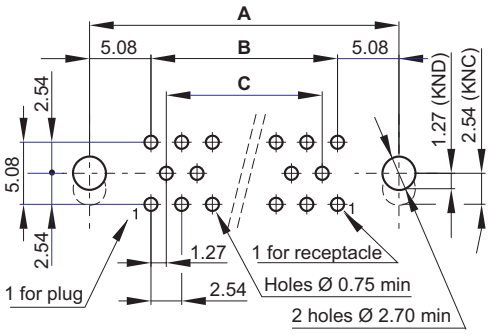
Panel: female or male, plug or receptacle
Terminations: 40 - 51
Guide styles: 111 - 121 *(Fixed Mount)*
Guide styles: 113 - 123 - 202 *(Float Mount)*

No. of contacts	26	44	62	80	98	108	126	144	160
A	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	149.86
B min	25.90	41.10	56.40	71.60	86.90	48.50	56.00	63.60	69.95
C (KNC)	–	–	6.00	6.00	6.00	–	–	–	6.00
C (KND)	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	–

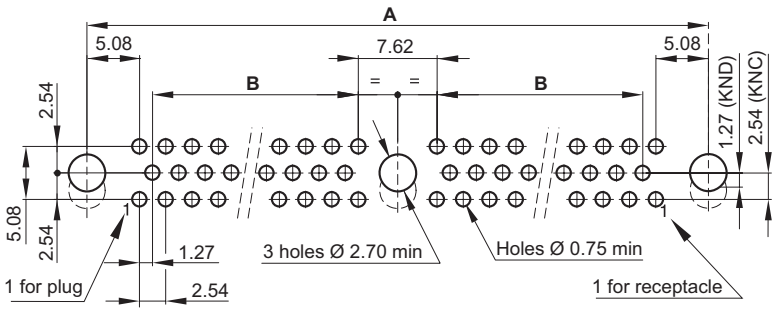
Board Preparation Details

Mother board

26 to 98 Contacts



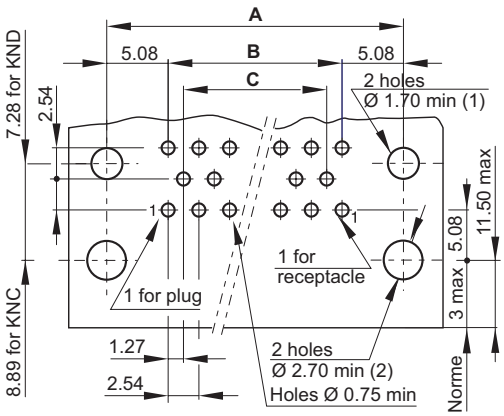
108 to 160 Contacts



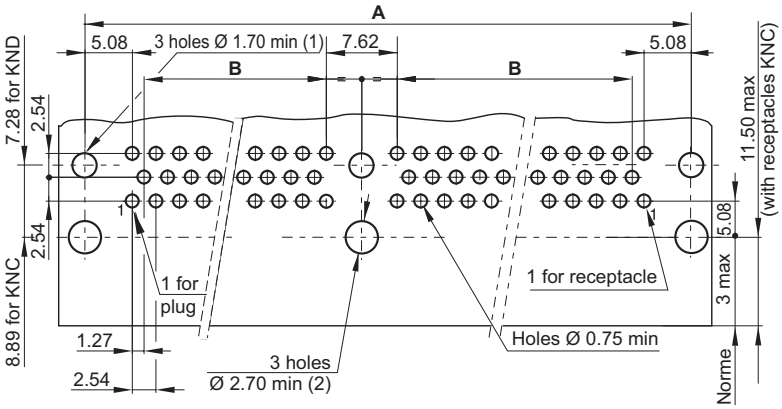
Mother Board: female or male, plug or receptacle, straight solder termination
Guide styles: 111 - 121- 202

Daughter board

26 to 98 Contacts



108 to 160 Contacts



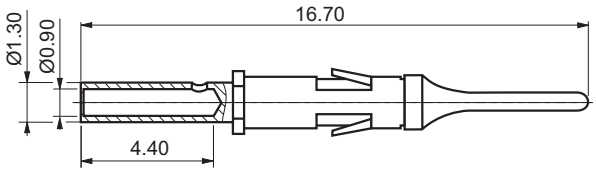
Daughter Board: female or male, plug or receptacle, 90° termination
(1) **Guide styles**: 124 (2) **Guide styles**: 110 - 206

No. of contacts	26	44	62	80	98	108	126	144	160
A	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	149.86
B	20.32	35.56	50.80	66.04	81.28	43.18	50.80	58.42	64.77
C	17.78	33.02	48.26	63.50	78.74	–	–	–	–

Contacts

Male

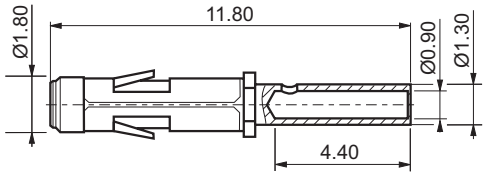
Crimp terminations awg 22-28 (0.079 - 0.34 mm²)



Reference	Part number
KN- ---13 **20** ---	006 042 1- 20R OG
KN- ---55 **20** --- **MR**	006 042 1- 20P OF 3401 017 004B

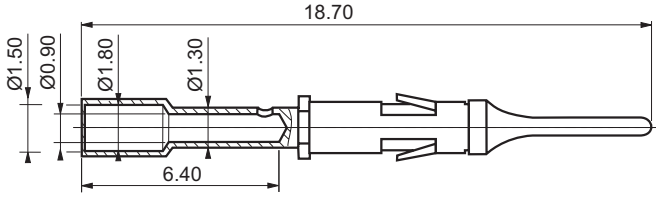
Female

Crimp terminations awg 22-28 (0.079 - 0.34 mm²)

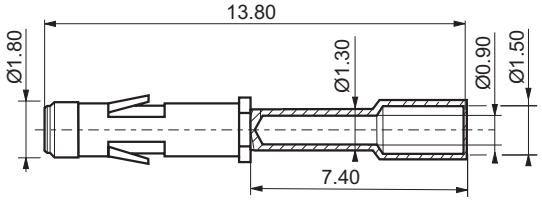


Reference	Part number
KN- ---22 **20** ---	006 042 2- 20R G0
KN- ---44 **20** --- **FR**	006 042 2- 20P J9 3401 017 015B

Crimp terminations awg 22-28 (0.079 - 0.34 mm²) & Sheath Ø1.45



Reference	Part number
KN- ---13 **20** ---	006 063 1- 21R OG
KN- ---55 **20** ---	006 063 1- 20R OF



Reference	Part number
KN- ---22 **20** ---	006 063 2- 21R G0
KN- ---44 **20** ---	006 063 2- 21R J3

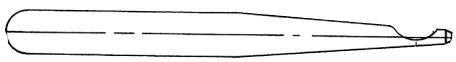
Tools

Crimp tool & Positioner

Ref: **S_102**
(M22520/2.01)

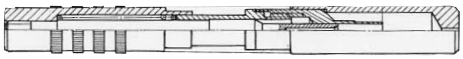
Contact part number		Crimp tool	AWG	Wire cross section	Positioner	Tool turret	Selector position
006 042 1- 20R OG 006 042 2- 20R GO		ASTRO TOOL M22520/2.01	28	0.079	SS-0060000001		3
			26	0.14			4
			24	0.20			4
			22	0.34			5
		DANIELS M22520/2.01	28	0.079	SS-0060000001		3
			26	0.14			4
			24	0.20			4
			22	0.34			5
006 063 1- 21R OG 006 063 2- 21R GO	**2 operations** **1st crimp** *(lead)*	ASTRO TOOL M22520/2.01	28	0.079	SS-0060000001		3
			26	0.14			4
			24	0.20			4
			22	0.34			5
		DANIELS M22520/2.01	28	0.079	SS-0060000001		3
			26	0.14			4
			24	0.20			4
			22	0.34			5
	2nd crimp *(sheath)*	ASTRO TOOL M22520/2.01	28	0.079	SS-0060000002		*
			26	0.14			6
			24	0.20			7
			22	0.34			7
		DANIELS M22520/2.01	28	0.079	SS-0060000002		*
			26	0.14			6
			24	0.20			7
			22	0.34			7
	1 operation	52007	28	0.079		SP717	2
			26	0.14			3
			24	0.20			4
			22	0.34			4

Insertion



SM-0060000001

Extraction



SD-0060000006

Alignment Combs

for 90° through board termination

2 fixing points **HPF107/B**
3 fixing points **SP. 006 00 00 004**

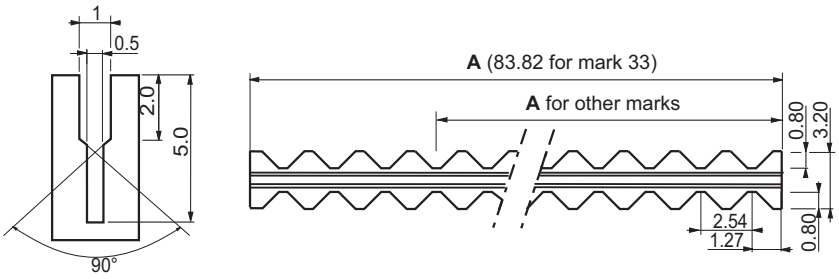
Screwdriver for m3 nut

208 locking devices
215 locking devices

S_075

Accessories

Antistatic Pin Protector



Ordering information

K N B - - - _ 314

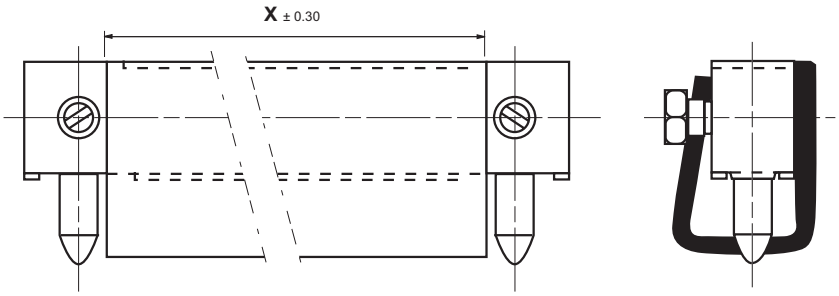
Ref

Use	A	Ref
KNB 017 KND 026	24.13	**009**
KNB 029 KND 044	39.37	**015**
KNB 072 KND 108	46.99	**018**
KNB 041 & 084 KNC 062 KND 062 & 126	54.61	**021**
KNB 096 KND 144	62.23	**024**
KNB 053 KNC 080 & 160 KND 080	69.85	**027**
KNB 120	77.47	**030**
KNB 065 KNC 098 KND 098	83.82	**033**

Note: Each part number contains only one header.
To equip fully the connector, you have to order 2, 3, 4 or 6 identical headers.
Header can fit on contacts or be positionned between rows.

Accessories

Pin Protector *(extruded polypropylene)*



Ordering information

K N - - - - _ 308

B, C or D

Number of positions

KNB	017	029	041	053	065	072	084	096	120
X ± 0.30	25.50	40.70	56	71.20	86.50	48.40	56	63.60	78.80
Qty	1	1	1	1	1	2	2	2	2

KNC	062	080	098	119	160
X ± 0.30	66	81.20	96.40	114.20	155.00
Qty	1	1	1	1	1

KND	026	044	108	126	144
X ± 0.30	35.50	50.70	111.70	127.00	142.20
Qty	1	1	1	1	1

Disclaimer

All of the information included in this catalogue is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.

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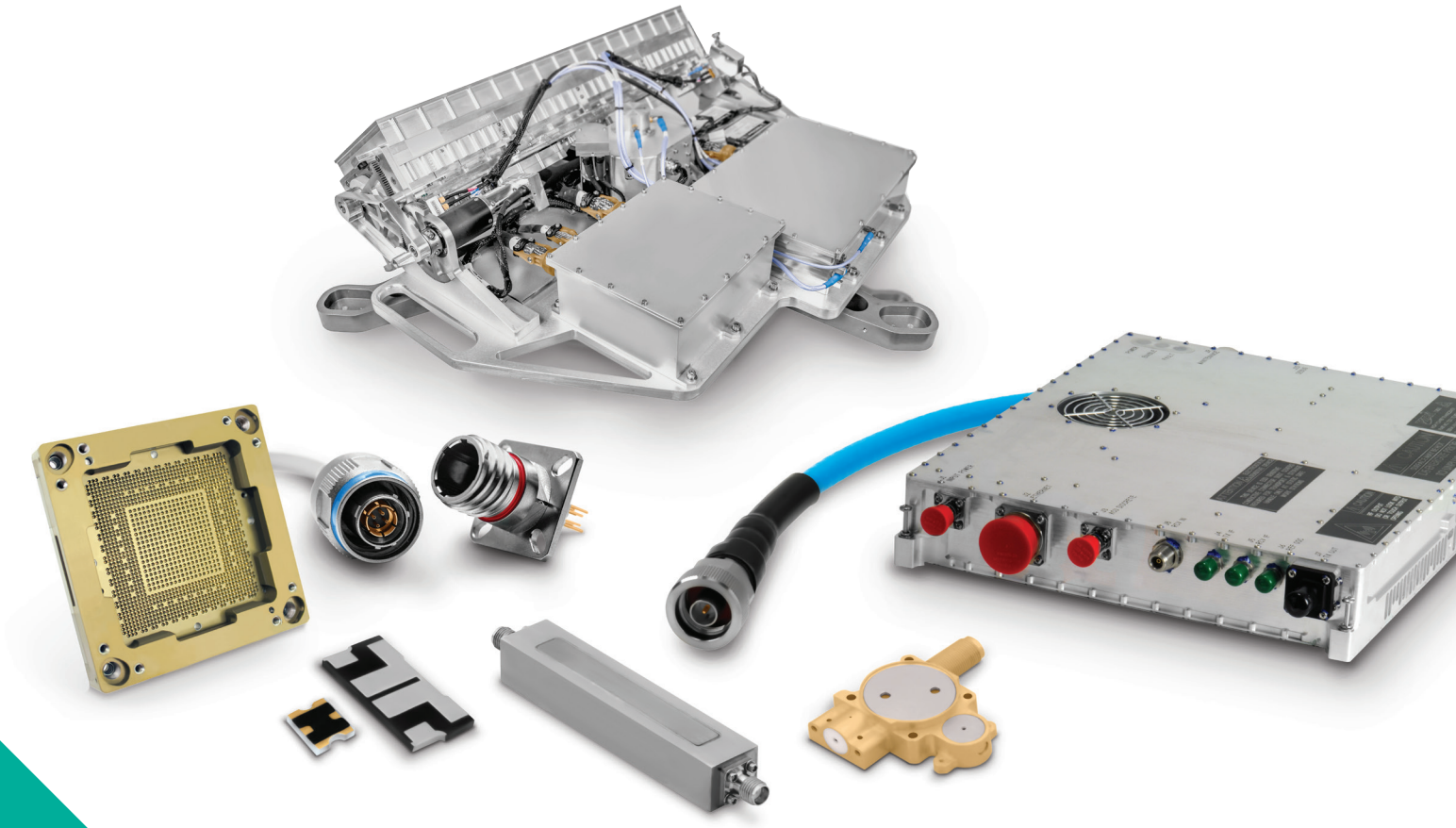
Product Portfolio



- Antenna Systems
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    - Connector Solutions
      - Ferrite Components & Assemblies
        - RF Filter Components & Assemblies
          - Integrated Microwave Assemblies
            - Millimetre-Wave Solutions
              - RF Components
                - Test Sockets and WLCSP Probe Heads
                  - Time & Frequency Systems

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